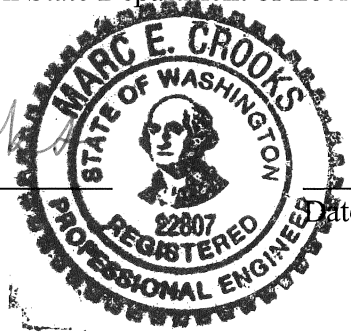
DEPARTMENT OF
ECOLOGY
State of Washington

PREVENTION OF SIGNIFICANT DETERIORATION (PSD) PERMIT

Issued To:	Puget Sound Energy Fredonia Generating Station 10885 NE 4th Street Bellevue, Washington 98009-9734
Facility Location:	13085 Ball Road Mt. Vernon, Washington 98273
Permit Number:	**PSD 11-05 Amendment 1**
Date of Original Permit Issuance:	**October 24, 2013**
Date of Permit Amendment Issuance:	**August 25, 2015**
Effective Date of Permit Amendment:	**August 25, 2015**

This PSD permit is issued under the authority of the Washington State Clean Air Act, Chapter 70.94 Revised Code of Washington; the Washington State Department of Ecology regulations for the Prevention of Significant Deterioration of Air Quality as set forth in Washington Administrative Code 173-400-700 through 750; and the agreement for the delegation of the federal Prevention of Significant Deterioration regulations by the United States Environmental Protection Agency to the Washington State Department of Ecology, dated November 17, 2011.

PREPARED BY:



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PROJECT SUMMARY

Puget Sound Energy, herein referred to as "PSE" or "Permittee," proposes to expand the Fredonia Generating Station (FGS) located at 13085 Ball Road near Mt. Vernon, Washington, by adding one or two simple cycle combustion turbines. The new turbines will provide up to approximately 181–207 megawatts (MW) of additional generating capacity to meet future PSE system needs. The new combustion turbines will fire natural gas as the primary fuel with limited backup firing of ultra-low sulfur diesel (ULSD) fuel oil.

PSE Fredonia requested approval to construct any one of the following four simple cycle combustion turbine options:

1. One (1) General Electric (GE) 7FA.05 frame turbine or a similar model, rated at approximately 207 MW.
2. One (1) GE 7FA.04 frame turbine or a similar model, rated at approximately 181 MW.
3. One (1) Siemens SGT6-5000F4 frame turbine, or a similar model, rated at approximately 197 MW.
4. Two (2) GE LMS100 high-efficiency aeroderivative turbines or similar models, with a combined rating of approximately 200 MW.

Ecology is allowing PSE to select the actual unit(s) to be installed after permit issuance. Air pollution control will include oxidation catalyst systems for the control of carbon monoxide (CO) and efficient combustion of inherently low polluting fuels (primarily use natural gas with limited firing on ULSD) to control emissions of particulate matter (PM) and sulfuric acid mist (H_2SO_4).

The project also includes the installation of one (1) 600 kilowatt (kW) diesel-fired emergency standby generator, and eight (8) new and two (2) replacement insulated circuit breakers, each of which contain up to 201 pounds (lb) of a sulfur hexafluoride (SF_6) dielectric.

A Prevention of Significant Deterioration (PSD) analysis was performed for the project for all pollutants to determine if any increase was above the "significance" level. The project will result in a significant net emissions increase of PM, PM less than 10 micrometers (µm) in diameter (PM_{10}), PM less than 2.5 µm in diameter ($PM_{2.5}$), H_2SO_4, and greenhouse gases (GHG) for all turbine options. The Siemens SGT6-5000F4 option (Option 3 above) will also result in a significant net increase in CO emissions.

A full technical review of the project for these NSR pollutants, including a Best Available Control Technology (BACT) analysis, and the project's effect on national ambient air quality standards (NAAQS), PSD increments, visibility, soils, and vegetation, is required and included in a Technical Support Document (TSD) prepared by the Washington State Department of Ecology (Ecology) dated October 21, 2013. The TSD for Amendment 1 is dated June 23, 2015.

The emissions of other air pollutants not subjected to PSD review will be covered in the Northwest Clean Air Agency (NWCAA) Notice of Construction (NOC) approval for this project.

APPROVAL CONDITIONS

Based on the PSD permit application submitted by PSE on February 23, 2011, the additional information submitted on July 7, August 3, and October 31, 2011, and February 14 and May 16, 2012, and the technical review performed by Ecology, Ecology finds that all requirements for issuance of this PSD permit have been satisfied. Ecology determined the application complete on November 22, 2011. Approval of the project is granted subject to the following conditions:

I. EFFECTIVE DATE OF PERMIT

In accordance with the Washington Administrative Code (WAC) 173-400-730(2) (c), the effective date of this PSD permit is one of the following dates:

A. If no comments on the preliminary determination were received: the date of issuance; or

B. If comments were received: thirty (30) days after the applicant and the commenters receive the final determination; or

C. If a review of the final determination is requested pursuant to WAC 173-400-730(4), the effective date of this permit is suspended until such time as the review and any subsequent appeal against this permit are resolved.

II. PERMIT EXPIRATION

Pursuant to WAC 173-400-730(5), and unless an extension is requested prior to expiration, this PSD permit will become invalid if construction:

A. Has not commenced (as defined in 40 CFR § 52.21(b)(9)) within thirty-six (36) months of the original permit issuance date of this permit; or

B. Is discontinued for a period of eighteen (18) months or more; or

C. Is not completed within a reasonable time.

III. PERMIT NOTIFICATION REQUIREMENTS

A. Permittee's requirements in this PSD permit to notify, report to, or acquire approval or agreement from "Ecology and/or the Northwest Clean Air Agency (NWCAA)" may be satisfied by providing such notification, reporting, or approval request to NWCAA if the conditions of this PSD permit have been incorporated into PSE's Title V Air Operating Permit issued pursuant to 40 CFR Part 70.

B. Permittee must notify Ecology and NWCAA in writing or electronic mail of the:

1. Date construction is commenced, postmarked or received no later than thirty (30) days after such date.

2. Anticipated date of initial start-up of each gas turbine not more than sixty (60) days nor less than thirty (30) days prior to such date. For the purpose of this permit, initial start-up occurs when fuel is first introduced to the subject combustion turbine.

3. Actual date of initial start-up of each gas turbine, as defined in Condition III.B.2, postmarked or received no later than fifteen (15) days after such date.

4. Actual date that commercial operation of the turbine commences, as defined in 40.CFR § 72.2, postmarked or received no later than fifteen (15) days after such date.

IV. EQUIPMENT RESTRICTIONS

A. Approved Equipment

This PSD permit authorizes the discharge of air contaminants from the construction and operation of the following equipment:

1. Combustion Turbines

   a. One (1) of the following turbine options:

      i. GE 7FA.05 option: One (1) 207 MW General Electric (GE) 7FA.05 frame turbine or a similar model, with a maximum design heat input rate of 2,124 million British thermal units per hour (MMBtu/hr) when firing natural gas and 2,252 MMBtu/hr when firing distillate oil, at full load based on the higher heating value (HHV) of the fuel at an ambient temperature, pressure and relative humidity of 51ºF, 14.68 psia and 75%, respectively. Actual heat input rate will vary depending upon gas turbine characteristics and ambient conditions.

      ii. GE 7FA.04 option: One (1) 181 MW GE 7FA.04 frame turbine or a similar model, with a maximum design heat input rate of 1,858 MMBtu/hr when firing natural gas and 2,012 MMBtu/hr when firing distillate oil, at full load based on the HHV of the fuel at an ambient temperature, pressure and relative humidity of 51ºF, 14.68 psia and 75%, respectively. Actual heat input rate will vary depending upon gas turbine characteristics and ambient conditions.

      iii. SGT6-5000F4 option: One (1) 197 MW Siemens SGT6-5000F4 frame turbine or a similar model, with a maximum design heat input

rate of 2,102 MMBtu/hr when firing natural gas and 1,933 MMBtu/hr when firing distillate oil, at full load based on the HHV of the fuel at an ambient temperature, pressure and relative humidity of 51ºF, 14.68 psia and 75%, respectively. Actual heat input rate will vary depending upon gas turbine characteristics and ambient conditions.

iv. GE LMS100 option: Two (2) 100 MW GE LMS100 aeroderivative turbines or similar models, with a maximum design heat input rate of 899 MMBtu/hr per unit when firing natural gas and 870 MMBtu/hr per unit when firing distillate oil, at full load based on the HHV of the fuel at an ambient temperature, pressure and relative humidity of 51ºF, 14.68 psia and 75%, respectively. Actual heat input rate will vary depending upon gas turbine characteristics and ambient conditions.

b. For purposes of the equipment specification in Condition IV.A.1.a., a natural gas heating value of 23,473 Btu/lb (HHV) and the ULSD heating value of 19,550 Btu/lb (HHV) shall be used in determining the maximum heat input capacity.

c. Prior to installation of any combustion turbine, PSE shall notify Ecology and NWCAA of the final turbine(s) selected from Condition IV.A.1.a. The notification must be accompanied by an application to revise this permit to reflect only the final turbine(s) to be installed. If the selected turbine model differs from the list in Condition IV.A.1.a., PSE shall request and receive an approval from Ecology and NWCAA at least 12 months in advance of installation.

2. Emergency Generator Engine: One (1) 600 kilowatt-electric (kWe) (approximately 890 brake-horsepower (bhp)) diesel-fired Internal Combustion (IC) engine (model year 2011 or later) certified to meet EPA Tier 2 emission standards of 40 CFR § 89.112, fired on ULSD fuel only.

3. Circuit Breakers

a. Eight (8) new and two (2) replacement enclosed-pressure circuit breakers, each designed to meet minimize leakage and contain up to 201 lb of an SF_6 dielectric.

b. Install SF_6 dielectric leak detection systems on circuit breakers, with an alarm warning when 10% (by weight) of the SF_6 dielectric has escaped.

B. Air Pollution Control Equipment and Operation

On or before the date of initial start-up of the emission units identified in Condition IV.A., and thereafter, the Permittee shall install, continuously operate, and maintain oxidation catalyst system for control of CO emissions from the Siemens SGT6-5000F4 combustion turbine option, while the turbine is operating.

C. Stack Parameters

1. The final exhaust stack height and diameter shall comply with the following nominal dimensions unless PSE requests and receives an approval from Ecology and NWCAA:

Equipment	Minimum Stack Height (ft)	Stack Exit Point Maximum Inside Diameter (ft)
a. Upon installation of any one of the following turbine options:		
i. GE 7FA.05 option	145	23
ii. GE 7FA.04 option	145	21
iii. SGT6-5000F4 option	145	23
iv. GE LMS100 option	110	12
b. Emergency Generator	50	0.83

2. No later than 180 days after initial start-up of the combustion turbine generators(s), the Permittee shall determine the actual stack exit point dimensions and certify in writing to Ecology and NWCAA that the exhaust stack dimensions comply with Condition IV.C.1.

3. The certification required by Condition IV.C.2. shall contain the actual heights and diameters of the stacks as built. A copy of this certification shall be retained on-site and be made available for inspection by EPA, Ecology, or NWCAA upon request.

V. BACT EMISSION LIMITS

Consistent with the requirements of 40 CFR § 52.21(j)(3), the following BACT limits apply to PM, PM_{10}, $PM_{2.5}$, H_2SO_4, and GHG emissions from any gas turbine option or auxiliary equipment identified in Condition IV.A.; as well as CO emissions from the Siemens SGT6-5000F4 turbine option (Condition IV.A.1.a.iii.) and associated auxiliary equipment.

A. Combustion Turbines

1. On and after 60 days following achievement of the maximum firing rate in a combustion turbine, but no later than 180 days after initial start-up of that

combustion turbine, as defined in Condition III.B.2, Permittee shall not discharge or cause the discharge of emissions into the atmosphere from any one of the following **combustion turbine options** in excess of the following quantities, **EXCEPT** during periods of start-up and shutdown as provided for under Conditions V.A.5. and VII.A.4.:

Pollutant/Turbine Option	Emission Limit		Units	Averaging Period
	Gas	ULSD		
a. Upon installation of GE 7FA.05 option				
i. $PM/PM_{10}/PM_{2.5}$	0.027	0.027	lb/MMBtu	Average of three 1-hr tests
	47.7	38.5	lb/hr	
ii. H_2SO_4	0.0097	0.0015	lb/MMBtu	24-hr average
	22.0	3.4	lb/hr	
iii. GHGs	Comply with Condition V.D.1.a.i.			
b. Upon installation of GE 7FA.04 option				
i. $PM/PM_{10}/PM_{2.5}$	0.030	0.028	lb/MMBtu	Average of three 1-hr tests
	46.4	38.4	lb/hr	
ii. H_2SO_4	0.0097	0.0015	lb/MMBtu	24-hr average
	18.7	3.0	lb/hr	
iii. GHGs	Comply with Condition V.D.1.a.ii.			
c. Upon installation of SGT6-5000F4 option				
i. $PM/PM_{10}/PM_{2.5}$	0.020	0.025	lb/MMBtu	Average of three 1-hr tests
	40.0	34.6	lb/hr	
ii. H_2SO_4	0.0103	0.0016	lb/MMBtu	24-hr average
	23.0	3.4	lb/hr	
iii. CO	4	8	ppmvd @ 15% O_2	1-hr average
	14.4	33.1	lb/hr	
iv. GHGs	Comply with Condition V.D.1.a.iii.			
d. Upon installation of GE LMS100 (each unit) option				
i. $PM/PM_{10}/PM_{2.5}$	0.029	0.040	lb/MMBtu	Average of three 1-hr tests
	17.8	26.7	lb/hr	
ii. H_2SO_4	0.0098	0.0015	lb/MMBtu	24-hr average
	8.7	1.3	lb/hr	
iii. GHGs	Comply with Condition V.D.1.a.iv.			

2. Compliance with Conditions V.A.1.a.i.; V.A.1.b.i.; V.A.1.c.i.; and V.A.1.d.i. shall be determined by the average of three test runs conducted during initial and periodic source testing required under Condition IX.C. of this permit.

3. Compliance with Conditions V.A.1.a.ii.; V.A.1.b.ii.; V.A.1.c.ii.; and V.A.1.d.ii. shall be determined by the average of three test runs conducted during initial and periodic source testing required under Condition IX.C. of

this permit, unless PSE elects to perform additional test runs during a 24-hr period, in which case all test runs results shall be averaged.

4. Compliance with Condition V.A.1.c.iii. shall be determined using data collected by a CO Continuous Emissions Monitoring System (CEMS) and O_2 CEMS. The CO and O_2 CEMS must meet the requirements of Condition IX.A.

5. For Siemens SGT6-5000F4 option only: During start-up and shutdown periods, as defined in Condition VII.A.4, CO emissions must not exceed 1,347 lb/start-up and 443 lb/shutdown when firing with natural gas, and 1,462 lb/start-up and 709 lb/shutdown when firing with ULSD.

6. Compliance with Condition V.A.4. shall be determined by using data collected by a CO CEMS if emissions are within the measurement range of the CEMS. The CO CEMS shall meet the requirements of Condition IX.A. When emissions are not within the measurement range of the CO CEMS, vendor supplied emission factor; source test data; or other method approved by Ecology and/or NWCAA, as specified in Condition III.A., may be used to estimate CO emissions for those periods.

B. Emergency Generator Engine

1. At all times, including equipment start-up and shutdown, consistent with the requirements of 40 CFR § 52.21(j)(3), Permittee shall not discharge or cause the discharge of emissions from the **emergency generator engine** into the atmosphere in excess of the following for any combustion turbine options:

Pollutant	Emission Limit
a. $PM/PM_{10}/ PM_{2.5}$	0.20 g/kW-hr, five-load weighted average as measured using the procedures in 40 CFR Part 89, Subpart E. Use of ultra-low sulfur fuel, not to exceed 15 ppmvd fuel sulfur
b. GHGs (as CO_2e)	Comply with Condition V.D.1.b.
c. CO (for SGT6-5000F4 option only)	3.5 g/kW-hr, five-load weighted average as measured using the procedures in 40 CFR Part 89, Subpart E

2. Compliance with Conditions V.B.1.a. and V.B.1.c. shall be determined by maintaining the engine according to manufacturer's recommendation, and an EPA-issued emissions certificate, which certifies that the engine complies

with EPA Tier 2 emission rates, and by maintaining fuel use records as required by Condition X.C.7.

C. Circuit Breakers

Consistent with the requirements of 40 CFR § 52.21(j)(3), Permittee shall use enclosed-pressure SF_6 circuit breakers designed to minimize leakage with leak detection systems and comply with Condition V.D.1.c.

D. GHG Emissions

1. On and after the date of initial start-up and **including periods of start-up and shutdown**, Permittee shall not discharge or cause the discharge of GHG emissions into the atmosphere from any emission units in excess of:

Emissions Unit	Emission Limit	
a. Upon installation of any one of the following combustion turbine options:		
i. GE 7FA.05 option	1,299	lb CO_2e/MW-hr net output; 365-day rolling average
	311,382	tpy as CO_2e; 12-month rolling total
ii. GE 7FA.04 option	1,310	lb CO_2e/MW-hr net output; 365-day rolling average
	274,496	tpy as CO_2e; 12-month rolling total
iii. SGT6-5000F4 option	1,278	lb CO_2e/MW-hr net output; 365-day rolling average
	301,819	tpy as CO_2e; 12-month rolling total
iv. GE LMS100 option	1,138	lb CO_2e/MW-hr net output per unit; 365-day rolling average
	327,577	tpy as CO_2e combined from two units; 12-month rolling total
b. Emergency generator	128.4	tpy as CO_2e; 12-month rolling total
c. Circuit breakers	120.1	tpy as CO_2e; 12-month rolling total

2. Compliance with Conditions V.D.1.a.i. through V.D.1.a.iv. shall be determined using steps below:

   a. The calculation of total CO_2e emissions are based on the procedures and Global Warming Potentials (GWP) contained in the GHG Regulations, 40 CFR PART 98, Subpart A, Table A-1.

$$GHG\ (lb\ CO_{2e}) = CO_2 + (M \times 21) + (N \times 310)$$

Where:

GHG: pounds of CO_2 equivalent of greenhouse gases emitted hourly

CO_2: pounds of CO_2 emitted hourly, determined according to the equations provided in 40 CFR Part 75, Appendices F and G, or a CO_2 CEMS per Condition IX.A.1.a.

M: pounds of CH_4 emitted hourly, determined based on emission factors provided in 40 CFR Part 98, Table C-2 and the actual heat input (HHV) per Condition VIII.A.7.

N: pounds of N_2O emitted hourly, determined based on emission factors provided in 40 CFR Part 98, Table C-2 and the actual heat input (HHV) per Condition VIII.A.7.

b. To comply with the CO_2e/MW-hr limit, the Permittee shall divide the GHG emissions per Condition V.D.2.a by the measured net hourly energy output (MW-hr). The calculated hourly rate is averaged daily and used to calculate the rolling 365-day average.

c. To comply with the tpy limit on a 12-month rolling total, the Permittee shall sum total GHG emissions per Condition V.D.2.a over the calendar month and convert the resulting value in pounds to tons by dividing 2000, and then add the value for the current calendar month and the values for the previous 11 calendar months.

3. Compliance with Condition V.D.1.b. shall be determined by the following formula:

$$\text{GHG}\ (tons\ CO_{2e}) = \frac{Q(gal) \times HHV_{ULSD}(\frac{MMBtu}{gal}) \times f_{ULSD}(\frac{lb\ CO_2}{MMBtu})}{2000}$$

Where:

GHG: tons of CO_2 equivalent of greenhouse gases emitted monthly

Q: total gallon of ULSD used monthly

HHV_{ULSD}: the high heating value of the ULSD fuel according to 40 CFR Part 98, Subpart C, Table C-1 or reported in fuel receipts

f_{ULSD}: ULSD's emission factor according to 40 CFR Part 98, Subpart C, Table C-1 or derived from unit specific source testing

To calculate a rolling 12-month total, add the value for the current calendar month and values for the previous 11 calendar months.

4. Compliance with Condition V.D.1.c. shall be determined by following formula:

$$GHG\ (tons\ CO_{2e}) = \frac{M_{SF_6}\ (lb) \times 23{,}900}{2000}$$

Where:

GHG: tons of CO_2 equivalent of greenhouse gases emitted monthly

M_{SF_6}: mass amount (lb) of SF_6 added to the ten circuit breakers monthly per Condition X.C.9.

To calculate a rolling 12-month total, add the value for the current calendar month and values for the previous 11 calendar months.

VI. ANNUAL EMISSION LIMITS

A. Consistent with the requirements of 40 CFR § 52.21(k)(1), Permittee shall not discharge or cause the discharge of **PM, PM_{10}, or $PM_{2.5}$** emissions from any one of the following **combustion turbine options** and **emergency generator** in excess of the following quantities, including emissions during periods of start-up and shutdown:

1. Upon installation of any one of the following turbine options:

   a. GE 7FA.05 option: 42.7 tpy; 12-month rolling total

   b. GE 7FA.04 option: 43.1 tpy; 12-month rolling total

   c. SGT6-5000F4 option: 32.4 tpy; 12-month rolling total

   d. GE LMS100 option (2 units): 44.9 tpy; 12-month rolling total

2. Emergency generator engine: 0.02 tpy; 12-month rolling total

3. Compliance with Conditions VI.A.1.a. through VI.A.1.d. shall be determined by summing emissions from normal operation and from start-up and shutdown events.

   a. Emissions from normal operation shall be calculated from the amount of fuel consumed and emission factors derived from source testing required under Condition IX.C.

   b. Emissions from start-up and shutdown events shall be calculated from the total number of start-up/shutdown events and the following emission

factors for each event, or other emission factors approved by Ecology and/or NWCAA, as specified in Condition III.A:

Upon installation of any one of the following combustion turbine options:	**Start-up (lb $PM_{2.5}$/event/unit)**		**Shutdown (lb $PM_{2.5}$/event/unit)**	
	Natural Gas	**ULSD**	**Natural Gas**	**ULSD**
i. GE 7FA.05 option:	9.2	17.0	5.8	9.6
ii. GE 7FA.04 option:	6.0	17.0	4.0	9.6
iii. SGT6-5000F4 option:	4.8	15.6	2.4	10.0
iv. GE LMS100 option:	3.3	14.3	1.0	4.7

4. Compliance with Condition VI.A.2. shall be determined using load-specific emission factors supplied by the engine manufacturer; or other emission factors approved by Ecology and/or NWCAA, as specified in Condition III.A.

B. Consistent with the requirements of 40 CFR § 52.21(k)(1), Permittee shall not discharge or cause the discharge of **CO** emissions from the **Siemens SGT6-5000F4 combustion turbine** and **emergency generator**, including emissions during periods of start-up and shutdown, in excess of the following quantities:

1. SGT6-5000F4 option: 157.4 tpy; 12-month rolling total

2. Emergency generator engine: 0.15 tpy; 12-month rolling total

3. Compliance with Condition VI.B.1. shall be determined using data collected by a CO CEMS if emissions are within the measurement range of the CEMS. The CO CEMS shall meet the requirements of Condition IX.A. When emissions are not within the measurement range of the CO CEMS, vendor supplied emission factor; source test data; or other method approved by Ecology and/or NWCAA, as specified in Condition III.A., may be used to estimate CO emissions for those periods.

4. Compliance with Condition VI.B.2. shall be determined using load-specific emission factors supplied by the engine manufacturer; or other emission factors approved by Ecology and/or NWCAA, as specified in Condition III.A.

C. Permittee shall not discharge or cause the discharge of **H_2SO_4** emissions from any one of the following **combustion turbine options** in excess of the following quantities, including during periods of start-up and shutdown:

1. Upon installation of any one of the following turbine options:

a. GE 7FA.05 option: 16 tpy; 12-month rolling total

b. GE 7FA.04 option: 14 tpy; 12-month rolling total

c. SGT6-5000F4 option: 17 tpy; 12-month rolling total

d. GE LMS100 option (2 units): 17 tpy; 12-month rolling total

2. Compliance with Conditions VI.C.1.a. through VI.C.1.d. shall be determined by summing emissions from normal operation and from start-up and shutdown events.

a. Emissions from normal operation shall be calculated from the amount of fuel consumed and emission factors derived from source testing required under Condition IX.C.

b. Emissions start-up and shutdown events shall be calculated from the total number of start-up/shutdown events and the following emission factors for each event, or other emission factors approved by Ecology and/or NWCAA, as specified in Condition III.A.:

Upon installation of any one of the following combustion turbine options:	**Start-up (lb H_2SO_4/event/unit)**		**Shutdown (lb H_2SO_4/event/unit)**	
	Natural Gas	**ULSD**	**Natural Gas**	**ULSD**
i. GE 7FA.05 option:	5.8	1.0	2.6	0.4
ii. GE 7FA.04 option:	8.0	1.0	3.2	0.4
iii. SGT6-5000F4 option:	7.2	1.0	3.6	0.6
iv. GE LMS100 option:	3.7	0.5	0.4	0.05

VII. SPECIFIC OPERATING REQUIREMENTS

A. Combustion Turbines

1. Fuel Restrictions

a. The primary fuel for any combustion turbine shall be natural gas.

b. ULSD fuel oil with a maximum sulfur content of 15 ppmw may be fired in the combustion turbines as a secondary fuel.

c. Distillate fuel oil may only be fired subject to the annual operating restrictions contained in Condition VII.A.3.

d. No combustion turbine shall fire multiple fuels at once, except while transitioning from one fuel to the other.

2. Operating Loads

   Except during periods of start-up and shutdown as provided for in Condition VII.4., the combustion turbines shall only operate at or above the following loads:

   a. GE 7FA.05 option: 50% fired on either natural gas or ULSD

   b. GE 7FA.04 option: 50% fired on either natural gas or ULSD

   c. SGT6-5000F4 option: 60% fired on natural gas and 70% fired on ULSD

   d. GE LMS100 option: 30% fired on natural gas and 75% fired on ULSD; distillate fuel use limited to an 80% use factor over a 24-hour period for both units (total 38 hours), and up to 10% of total time (3.8 hours) at loads below 100 percent.

3. Maximum Annual Fuel Use

   Permittee shall not burn fuels from any one of the following **combustion turbine options** in excess of the following quantities in any consecutive 12-month period, including during periods of start-up and shutdown:

Turbine Options	Maximum Annual Fuel Use (MMBtu/yr)	
	Gas and ULSD	ULSD
a. GE 7FA.05 option:	5,023,664	769,664
b. GE 7FA.04 option:	4,424,358	688,973
c. SGT6-5000F4 option:	4,959,209	663,277
d. GE LMS100 option (2 units combined):	5,389,979	595,924

   e. GE LMS100 option: According to Chapter 80.80.010 RCW and WAC 173-407-130, natural gas and ULSD shall only be fired for a maximum of 4,726,461 MMBtu per unit in any consecutive 12-month period, subject to the annual fuel use restriction contained in Condition VII.A.3.d.

4. Gas Turbine Start-up and Shutdown

   a. In this permit:

      i. "Start-up" means the period beginning with initiation of fuel flow into the combustion turbine and ending when the unit achieves stable operation and maintains compliance with Condition V.A.1.or the

maximum time allowed for the event per Condition VII.A.4.b., whichever occurs first.

ii. "Shutdown" means the period beginning when the shutdown sequence is initiated, and lasting until fuel flow is completely off and combustion has ceased, not to exceed the maximum time allowed for the event as specified in Condition VII.A.4.b.

b. The total annual (calendar year) number and duration of start-up and shutdown periods shall not exceed the following:

Turbine Option	Start-Ups/ Shutdowns	Fuel	Duration (minutes/ event)	Annual Event Limit (events/yr)	Annual Hours (hr/yr)
i. GE 7FA.05 option	Start-ups	Gas	30	144	129
		Oil	30	14	
	Shutdowns	Gas	19	144	
		Oil	17	14	
ii. GE 7FA.04 option	Start-ups	Gas	30	144	116
		Oil	30	14	
	Shutdowns	Gas	14	144	
		Oil	14	14	
iii. SGT6-5000F4 option	Start-ups	Gas	35	144	138
		Oil	38	14	
	Shutdowns	Gas	17	144	
		Oil	19	14	
iv. GE LMS100 option (each unit)	Start-ups	Gas	30	240	161
		Oil	30	14	
	Shutdowns	Gas	8	240	
		Oil	8	14	

i. If a combustion turbine trips during start-up and start-up is reinitiated within 24 hours, and the sum of the start-up event durations does not exceed the applicable time limit in Condition VII.A.4.b.; this sequence of events constitutes a single start-up for the purpose of determining compliance with Condition VII.A.4.b., and event durations shall exclude periods when fuel flow is shut off as a result of trips. Otherwise a start-up that is interrupted by a trip shall be counted as two individual start-ups.

c. Start-ups and shutdowns are limited to one (1) per unit per hour, two (2) per unit in a 3-hr period, five (5) per unit in an 8-hr period, and five (5) per unit in a 24-hr period.

d. Start-up and shutdown on fuel oil is limited to one (1) start-up and shutdown per day, although additional start-up and shutdowns can be made on natural gas during that period according to Condition VII.A.4.c.

e. The Permittee must record the time, date, fuel type, and duration of each start-up and shutdown event.

B. Emergency Generator Engine

1. The emergency generator engine shall only be fired on ULSD, with a maximum sulfur content of 15 ppmw. A fuel certification or receipt from the fuel supplier may be used to demonstrate compliance with this requirement.

2. Operation of the emergency generator engine shall be limited to maintenance checks, readiness testing, and as necessary to provide emergency power.

3. Operation of the emergency generator engine shall not exceed a combined total of 275 hours in any consecutive 12-month period.

VIII. COMPLIANCE MONITORING REQUIREMENTS

A. The hourly average of the following data for each **combustion turbine** exhaust stack (unless otherwise specified) shall be recorded by an automated data acquisition system, and made readily available on-site for inspection:

1. CO (ppmvd @ stack O_2) (only if the Siemens SGT6-5000F4 turbine option is selected).

2. CO (ppmvd @ 15% O_2) (only if the Siemens SGT6-5000F4 turbine option is selected).

3. CO_2 (ppmvd @ stack O_2) (only if the Permittee elects to install a CO_2 CEMS).

4. CO_2 (ppmvd @ 15% O_2) (only if the Permittee elects to install a CO_2 CEMS).

5. O_2 concentration (dry volume percent) (only if the Siemens SGT-5000F4 turbine option is selected; or only if the Permittee elects to install a CO_2 CEMS).

6. Combustion turbine fuel consumption by fuel type in MMBtu (HHV).

7. Turbine generator net energy output (MW-hr).

8. Turbine loads.

B. All data collected to comply with Condition VIII.A. shall be readily identifiable (i.e., appropriately labeled) in the record. All periods of monitor downtime shall be clearly identified.

C. The following information shall be collected, recorded at the intervals specified below, and made readily available on-site for inspection:

1. The results of all CEMS calibrations and quarterly cylinder gas audits shall be recorded for each occurrence.

2. The number of hours the emergency generator engine operated shall be recorded for each calendar month.

3. The fuel sulfur content of the diesel fuel burned in the combustion turbines and emergency generator engine shall be determined and recorded in accordance with 40 CFR Part 75, Appendix D, Section 2.2.

4. The sulfur content of natural gas fired at the combustion turbines shall be determined at least monthly, using a methodology identified in 40 CFR Part 75, Appendix D, Section 2.3.2, or an alternative method approved by Ecology and NWCAA.

5. Maintenance and repair activities that may affect emissions from the combustion turbine and emergency generator engine shall be recorded for each occurrence.

6. Maintenance and repair activities for CEMS (and catalytic oxidation system if Siemens SGT6-5000F4 is selected) shall be recorded for each occurrence.

IX. EMISSION MONITORING AND TESTING REQUIREMENTS

A. CEMS for the Combustion Turbines

1. At the earliest feasible opportunity within 60 days following achievement of a maximum firing rate in a combustion turbine, but no later than 180 days after initial start-up of that combustion turbine, as defined in Condition III.B.2, in accordance with the recommendations of the equipment manufacturer and the construction contractor, Permittee shall install, and thereafter operate, maintain, certify, and quality-assure:

a. A CEMS for each combustion turbine that measures stack gas CO_2 concentrations in ppmv (only if the Permittee elects to install a CO_2 CEMS). The concentration shall be corrected to 15% O_2 on a dry basis. The CO_2 CEMS shall meet all applicable EPA monitoring performance specifications including, but not limited to, 40 CFR Part 60, Appendix B, Performance Specification 3.

b. For the Siemens SGT6-5000F4 option only: a CEMS that measures stack gas CO concentrations in ppmv. The concentration shall be corrected to 15% O_2 on a dry basis. The system shall meet all applicable EPA monitoring performance specifications including, but not limited to, 40 CFR Part 60, Appendix B, Performance Specification 4 or 4a, and Appendix F, Procedure 1, except that the Relative Accuracy Test Audit (RATA), linearity check and leak test schedule shall respect the testing frequency concepts of QA operating quarter and grace period in 40 CFR Part 75, Appendix B and the relative accuracy specified in Section 13.2 of 40 CFR Part 60 Appendix B, Performance Specification 4 or 4a shall not exceed 15 percent.

c. For the Siemens SGT6-5000F4 option only and for all four turbine options only if the Permittee elects to install a CO_2 CEMS: a CEMS for each combustion turbine that measures stack gas oxygen (O_2) concentrations. The system shall meet the requirements contained in 40 CFR Part 75, Emissions Monitoring.

d. Continuous monitoring systems to measure and record stack gas temperatures, and fuel flow rate. These systems shall meet all applicable EPA monitoring performance specifications in 40 CFR Part 75, Appendix B.

2. The performance evaluation of the CEMS may either be conducted separately, as specified in 40 CFR § 60.334(b)(1), or as part of the initial performance test of each emission unit. CEMS must undergo and pass initial performance specification testing on or before the date of the initial performance test.

3. CEMS shall meet the requirements of 40 CFR § 60.13. Data sampling, analyzing, and recording shall also be adequate to demonstrate compliance with emission limits during start-up and shutdown.

4. Not less than 90 days prior to the date of initial start-up of the facility, the Permittee shall submit to Ecology and NWCAA a quality assurance project plan for the certification and operation of the continuous emission monitors. Such a plan shall conform to EPA requirements contained in 40 CFR Part 60, Appendix F, for CO and O_2 (only if the Siemens SGT6-5000F4 turbine option is selected), and CO_2 and O_2 (only if the Permittee elects to install a CO_2

CEMS), and 40 CFR Part 75, Appendix B, for stack flow. The plan shall be updated and resubmitted upon request by Ecology and NWCAA. The protocol shall specify how emissions during start-ups and shutdowns will be determined and calculated, including quantifying flow accurately if calculations are used.

5. Permittee shall submit a CEMS performance test protocol to Ecology and/or NWCAA, as specified in Condition III.A., no later than 30 days prior to the test date to allow review of the test plan and to arrange for an observer to be present at the test. The performance test shall be conducted in accordance with the submitted protocol, and any changes required by Ecology and NWCAA.

6. Permittee shall furnish Ecology and/or NWCAA, as specified in Condition III.A., a written report of the results of performance tests no later than 60 days after completion.

B. Monitoring for Auxiliary Equipment

1. The emergency generator engine shall have an operational non-resettable elapsed time meter for determining the total operating hours of the engine.

2. Each circuit breaker installed under terms of this permit must have a leak detection system that signals an alarm in the PSE's control room in the event that any circuit breaker loses more than 10% of its SF_6 dielectric. Alarms must be logged by the date and time of occurrence. The Permittee shall promptly respond to the alarm, and repair or replace the circuit breaker within 48 hours of the alarm. Alternatively, PSE may temporarily remove SF_6 dielectric from the breaker within 48 hours of the alarm until the unit can be repaired or replaced.

C. Performance Testing

1. Stack Testing of Combustion Turbines

a. Within 60 days following achievement of a maximum firing rate in a combustion turbine, but no later than 180 days after the initial start-up of that combustion turbine, as defined in Condition III.B.2, Permittee shall conduct initial performance tests (as described in 40 CFR § 60.8) to demonstrate compliance with the limits in Condition V.A.1. for:

i. CO_2, H_2SO_4, and $PM/PM_{10}/ PM_{2.5}$ emissions from all gas turbine options except the Siemens SGT6-5000F4 turbine option specified in Condition IV.A.1.a.iii.

ii. CO_2, CO, H_2SO_4, and $PM/PM_{10}/PM_{2.5}$ emissions from the Siemens SGT6-5000F4 turbine option specified in Condition IV.A.1.a.iii.

b. Annual performance tests shall be conducted for H_2SO_4 and $PM/PM_{10}/PM_{2.5}$ emissions no later than 30 days after the initial performance test anniversary to demonstrate compliance with the limits in Condition V.A.1.

c. After four (4) consecutive years of tests have been completed, compliance with H_2SO_4 and $PM/PM_{10}/PM_{2.5}$ emission limits in Condition V.A.1. has been demonstrated, testing for H_2SO_4 and $PM/PM_{10}/PM_{2.5}$ emissions may be reduced to once every five calendar years. If a once every 5-year testing indicates noncompliance, the testing schedule may revert to an annual frequency until a new four-consecutive-year of testing indicating compliance is demonstrated.

d. All performance tests for CO_2, $PM/PM_{10}/PM_{2.5}$, and H_2SO_4 shall be conducted at maximum load conditions (at 90% or above) and all performance tests for CO (only if the Siemens SGT6-5000F4 turbine is selected) shall be conducted at within plus or minus 5% of minimum load conditions identified in Condition VII.A.2.c.

e. Permittee shall submit a performance test protocol to Ecology and/or NWCAA, as specified in Condition III.A., no later than 30 days prior to the test to allow for review and comment on the test plan. An agency observer may be present at the test. The performance test shall be conducted in accordance with the submitted protocol, and any changes required by Ecology and/or NWCAA.

f. Performance tests shall be conducted in accordance with the test methods set forth in 40 CFR § 60.8 and 40 CFR Part 60, Appendix A, as modified below. In lieu of the specified test methods, alternative methods may be used with prior written approval from EPA, Ecology, and NWCAA:

i. EPA Methods 1-4 for stack gas velocity, sample area, volumetric flow rate, molecular composition, excess air of flue gases, and moisture content of flue gas.

ii. EPA Method 10 for CO emissions.

iii. EPA Method 3B for CO_2 emissions.

iv. EPA Methods 5 or Method 201A for filterable particulate matter (PM, PM_{10}, and $PM_{2.5}$), and Method 202 for condensable particulate matter (PM, PM_{10}, and $PM_{2.5}$).

v. EPA CTM-013B (NCASI Method 8A) for H_2SO_4 emission.

g. Test results indicating that emissions are below the limits of detection shall be deemed to be in compliance with the applicable emission limit.

h. If the emissions unit to be tested is not operated in a month during which performance testing is due, testing must be conducted no later than the end of the calendar month in which it is next operated.

i. Upon written request and adequate justification from the Permittee, Ecology, and/or NWCAA, as specified in Condition III.A., may waive or delay a specific performance test and/or allow for testing to be done at less than maximum operating capacity.

j. For performance test purposes, sampling ports, platforms, and access meeting the requirements of 40 CFR § 60.8(e) shall be provided on the combustion turbine exhaust stack.

k. Permittee shall furnish Ecology and/or NWCAA, as specified in Condition III.A., a written report of the results of performance tests no later than 60 days after completion of the tests.

l. Initial performance tests should be based on the use of both natural gas and ULSD for all pollutants except for CO_2 specified in Condition IX.C.1.a. Initial CO_2 performance tests should be based on the use of natural gas only.

m. Natural gas shall be selected as the fuel for the annual testing specified in Condition IX.C.1.b. Additional performance tests for H_2SO_4 and $PM/PM_{10}/PM_{2.5}$ emissions on ULSD will be required within 60 days whenever the total hours of diesel firing exceeds 300 hours during a given calendar year unless NWCAA grants a time extension, but will occur no less frequently than once per five calendar years. Whenever possible, diesel-fired performance tests may be scheduled concurrently with natural gas-fired performance tests.

2. Fuel Testing

Permittee shall analyze for sulfur content of the natural gas and distillate fuel combusted in the combustion turbines and emergency generator engine, as specified in Conditions VIII.C.3. and VIII.C.4. The fuel sulfur content information shall be retained on-site, or made electronically accessible at the site, pursuant to Condition X.G.

X. RECORDKEEPING AND REPORTING REQUIREMENTS

A. Prior to start-up, the Permittee shall provide Ecology and NWCAA with the make, model, individual heat input capacity, and gross power output of each combustion turbine and emergency generator engine.

B. No later than 15 days after the end of each calendar month, the Permittee shall, using monitoring data collected pursuant to the requirements of this permit, and emission factors approved by Ecology and NWCAA pursuant to this permit:

1. Calculate and record the monthly emissions of each pollutant identified in Conditions V. and VI. in a table for the preceding month.
2. Calculate and record the rolling 12-month emissions of each pollutant in a table by using the monthly emissions calculated for the previous 12 months.

3. PSE shall rely on available data at the time of each report.

C. The following records shall be reported to NWCAA for each calendar quarter no later than 30 days following the end of the calendar quarter:

1. The quantity of CO (only if the Siemens SGT6-5000F4 turbine is selected), PM, PM_{10}, $PM_{2.5}$, H_2SO_4, and GHG emitted by each emission unit for each month of the quarter, and the 12-month rolling total. GHG shall be calculated as specified in Condition V.D.2.

2. The quantity of fuel burned in MMBtu HHV, by fuel type and by each combustion turbine for each month of the quarter, and the 12-month rolling total.

3. The 24-hour rolling average turbine loads.

4. The turbine net electrical output (MW-hr) as determined in accordance with WAC 173-407-230.

5. The 365-day rolling average GHG emission rate (lb CO_2e/MW-hr) for each combustion turbine.

6. The results of all natural gas and diesel fuel sulfur content pursuant to Condition IX.C.2.

7. The quantity and sulfur content of diesel fuel combusted by the emergency generator engine.

8. The number of hours and purposes the emergency generator engine operated.
9. The pounds of SF_6 dielectric added to the circuit breakers each month.

D. Consistent with the requirements of WAC 173-400-105(1), air emissions of CO (only if the Siemens SGT6-5000F4 option is selected), PM, PM_{10}, $PM_{2.5}$, H_2SO_4, and GHG shall be reported annually to NWCAA **by April 15** for the previous calendar year.

E. Turbine net electrical output (MW-hr) and emissions of CO_2, methane (CH_4), and nitrous oxide (N_2O) shall be reported to NWCAA and/or Ecology, as specified in Condition III.A., **by January 31** for the previous calendar year in accordance with the requirements of WAC 173-407-230. All supporting information required for the emission calculations shall be included in the report.

F. Records shall be maintained of the occurrence and duration of any start-up and shutdown of the combustion turbine.

G. Records must be retained for not less than five (5) years after their origination.

1. At a minimum, the most recent two (2) years of data must be retained on-site (or be electronically accessible at the site). The remaining three (3) years of data may be retained off-site.

2. Records must be available for inspection by Ecology and NWCAA within ten (10) days of request.

XI. GENERAL RESTRICTIONS ON FACILITY OPERATIONS

A. At all times, the Permittee must, to the extent practicable, maintain and operate the emission units identified in Condition IV.A., including any associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

B. Determination of whether acceptable operating and maintenance procedures are being used for the emission units identified in Condition IV.A. will be based on information available to Ecology, NWCAA, EPA and/or their authorized representatives, which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

XII. MALFUNCTION AND EXCESS EMISSIONS REPORTING

A. Prior to incorporation of the conditions of this PSD permit into the Permittee's Title V Air Operating Permit issued pursuant to 40 CFR Part 70, Permittee must report to Ecology and NWCAA, in writing or electronic mail, following the discovery of any malfunction of air pollution control equipment, process equipment, or of a process, which results in an increase in emissions above the

allowable emission limits specified in Conditions V. and VI. of this permit, in accordance with WAC 173-400-107 and the following conditions:

1. As used in WAC 173-400-107(3), "as soon as possible" shall mean in no case later than twelve (12) hours following the discovery of any occurrence of excess emissions above the allowable emission limits specified in Conditions V. and VI. of this permit that represent a potential threat to human health or safety.

2. Permittee must notify Ecology and NWCAA, in writing or electronic mail, postmarked or received no later than thirty (30) days after the end of the month in which a malfunction is discovered, for any malfunction of air pollution control equipment, process equipment, or of a process, which results in an increase in emissions above the allowable emission limits specified in Conditions V. and VI. of this permit. This notification must include a description of the malfunctioning equipment, process equipment or process, the date and time of the initial malfunction (if known), the period of time over which emissions were increased due to the malfunction, the cause of the malfunction (if known), the estimated resultant emissions in excess of those allowed in Conditions V. and VI., and the methods utilized to mitigate emissions and restore normal operations.

3. For purposes of Condition XII.A., "malfunction" means any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner.

B. After the conditions of this PSD permit have been incorporated into the Permittee's Title V Air Operating Permit issued pursuant to 40 CFR Part 70, Permittee shall report to NWCAA the discovery of any malfunction of air pollution control equipment, process equipment, or of a process, which results in an increase in emissions above the allowable emission limits specified in Conditions V. and VI. of this permit pursuant to the deviation reporting requirements and, if applicable, pursuant to the unavoidable excess emissions reporting requirements, of that Title V Air Operating Permit.

C. Compliance with the malfunction notification requirements of Conditions XII.A. or XII.B., as applicable, will not excuse or otherwise constitute a defense to any violation of this PSD permit or any law or regulation such malfunction may cause.

XIII. RIGHT OF ENTRY

Section 114 of the federal Clean Air Act, 42 U.S.C. §7414, the Revised Code of Washington (RCW) 70.94.200, and WAC 173-400-105(3) provide authorized representatives of EPA, Ecology, and NWCAA certain rights to enter and inspect the source. Refusal by the Permittee to allow such entry and inspection may be a violation of

the federal Clean Air Act and/or the RCW subject to penalty as provided in those statutes. Pursuant to these statutes, authorized representatives of EPA, Ecology, and NWCAA, upon the presentation of credentials:

A. Have a right of entry to, upon, or through any premises of the Permittee or any premises in which any records this permit requires the Permittee to maintain are located.

B. Have the right, at reasonable times, to access and copy any records this permit requires the Permittee to maintain.

C. Have the right, at reasonable times, to inspect any monitoring equipment or method required by this permit.

D. Have the right, at reasonable times, to sample any emissions that the Permittee is required to sample under this permit.

XIV. TRANSFER OF OWNERSHIP

A. In the event of any changes in control or ownership of facilities to be constructed, this PSD permit will be binding on all subsequent owners and operators. The applicant must notify the succeeding owner and operator of the existence of this PSD permit and its conditions by letter, a copy of which must be forwarded to Ecology and/or NWCAA, as specified in Condition III.A.

B. If the conditions of this PSD permit have been incorporated into PSE Fredonia's Title V Air Operating Permit issued pursuant to 40 CFR Part 70, then the provisions for amending that Title V Air Operating Permit to allow for a change in ownership or operational control shall apply in place of the notification provisions in Condition XIV.A.

XV. ADHERENCE TO APPLICATION AND COMPLIANCE WITH OTHER ENVIRONMENTAL LAWS

A. Pursuant to 40 CFR § 52.21(r)(1), the Permittee must construct and operate the proposed emissions units in accordance with this PSD permit and the application on which this permit is based.

B. Pursuant to 40 CFR § 52.21(r)(3), this PSD permit shall not relieve the Permittee of the responsibility to comply fully with applicable provisions of the State Implementation Plan and any other requirements under local, state, or federal law.

C. Any applicant who fails to submit any relevant facts or who has submitted materially incorrect relevant information in a permit application must, upon

becoming aware of such failure, or incorrect submittal, promptly submit such supplementary facts or corrected information.

D. To the extent provided by 40 CFR §52.12(c), for the purpose of establishing whether or not the Permittee has violated or is in violation of any requirement of this permit, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether the Permittee would have been in compliance with applicable requirements if the appropriate performance or reference test or procedure had been performed.

XVI. APPEAL PROCEDURES

This PSD permit amendment, or any conditions contained in it, may be appealed to:

A. The Pollution Control Hearings Board (PCHB) as provided in Chapter 43.21B RCW and Chapter 371-08 WAC.

ACRONYMS AND ABBREVIATIONS

µm	micrometers
BACT	Best Available Control Technology
CFR	Code of Federal Regulations
CEMS	Continuous Emissions Monitoring System
CH_4	methane
CO	carbon monoxide
CO_2e	carbon dioxide equivalents
Ecology	Washington State Department of Ecology
EPA	United States Environmental Protection Agency
g/kW-hr	Grams per Kilowatt-hour
GE	General Electric
GHG	greenhouse gases
H_2SO_4	sulfuric acid mist
HHV	higher heating value
kW	kilowatt (power output)
kWe	kilowatt-electric
lb/hr	pound(s) per hour
MMBtu/hr	million British thermal units per hour
N_2O	nitrous oxide
NWCAA	Northwest Clean Air Agency
O_2	oxygen
PCHB	Pollution Control Hearings Board
PM	particulate matter
PM_{10}	particulate matter less than 10 micrometers in diameter
$PM_{2.5}$	particulate matter less than 2.5 micrometers in diameter
ppm	parts per million
ppmv	parts per million by volume
ppmvd	parts per million by volume on a dry basis
PSD	Prevention of Significant Deterioration of Air Quality
PSE	Puget Sound Energy

RATA	Relative Accuracy Test Audit
RCW	Revised Code of Washington
SF_6	sulfur hexafluoride
tpy	tons per year
U.S.C.	United States Code
ULSD	ultra-low sulfur diesel
WAC	Washington Administrative Code